

Annotated checklist of family- and genus-group names associated with Scoliidae (Hymenoptera, Aculeata)

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Abstract

Thirty-two family-group names and 161 genus-group names are listed for Scoliidae, including two fossil subfamilies and eight fossil genera, together with identification of type species and critiques of publication history. Campsomerinae was first made available in 1912. Contrary to previous usage, Argaman must be recognised as author of *Bellimeris*, *Catharinimeris* (not *Cathimeris*), *Colpacampsomeris*, *Fasciomeris* (not *Fascimeris*), *Garantimeris*, *Lindenimeris*, *Phaleromeris* (not *Phalerimeris*), *Tetrasciton* and *Tristomeris*. *Tristomeris* takes precedence as correct spelling over *Tristimeris*. A summary classification to genus level is provided for Scoliidae. Trielidina **stat. nov.** is recognised as a subtribe of Campsomerini.

Keywords

Nomenclature, Scoliioidea, taxonomy

Introduction

The Scoliidae, commonly known as hairy flower wasps, are a cosmopolitan family of relatively large, hairy aculeate wasps that develop as external parasitoids of larval scarabaeid beetles (Naumann 1991). Recent phylogenetic analyses support an isolated position for Scoliidae within the stinging wasps (Aculeata), forming a superfamily Scoliioidea with the small family Bradynobaenidae (Zhang et al. 2024). Though their dramatic appearance and role as predators of pest species has long made them a subject of interest (Clausen et al. 1927; Inoue and Endo 2006; Abbate et al. 2018), scoliids

have also been notorious for their complicated taxonomy. Day et al. (1981) regarded the family as ‘over-burdened nomenclatorially’ whereas Argaman (1996) stated that its nomenclature was ‘at the least, disastrous’. Most of this ire has been directed towards the arrangement of species and genera but confusion has also arisen in the application of higher taxa, particularly regarding the priority of Campsomerinae and Trielidini (Liu et al. 2021a).

The family Scoliidae was first recognised by Latreille (1802, as ‘Scolietae’), including the genera *Scolia* Fabricius, 1775 and *Sapyga* Latreille, 1796. During the 1800s and early 1900s, Scoliidae was commonly recognised as including wasps now assigned to separate families such as Tiphidae, Thynnidae, Mutillidae and Sapygidae (e.g. Westwood 1840; Dalla Torre 1897; Sharp 1899). Scoliids in the modern sense were assigned to a single genus *Scolia* or divided between a small number of genera. Saussure and Sichel’s (1864) monograph recognised three genera, *Liacos* Guérin-Ménéville, 1838, *Scolia* and *Elis* Fabricius, 1804, with each divided into two subgenera. Scoliidae was restricted to its modern sense by Ashmead (1903) who divided it between two subfamilies, the Scoliinae and the Elidinae. However, the name ‘Elidinae’ may no longer be used for Scoliidae as its type genus belongs to a different family (see comments below). The correct application of *Elis* and Elididae was recognised by Schrottky (1910) and appears to have been followed by all subsequent authors. *Elis* in the sense of Saussure and Sichel (1864) was then typically recognised as *Campsomeris* Guérin-Ménéville, 1838.

For much of the 20th Century, scoliid taxonomy was dominated by the work of two authors, Johan George Betrem & J. Chester Bradley. In his revision of the Indo-Australian scoliids, Betrem (1928) assigned most species to just two genera, *Scolia* and *Campsomeris*. Each of these genera was divided into a complex system of sub- and infra-generic groups. Many of these subgroups would later be elevated to the status of distinct genera (e.g. Betrem 1941; Bradley 1964a; Bradley and Betrem 1967).

Unfortunately, Betrem and Bradley’s numerous important publications on scoliid taxonomy are marred by a sometimes careless approach to the requirements of priority (Elliott 2011). Successive publications could be inconsistent in matters such as type-species designations and spellings of names (Elliott 2011; Taylor and Barthélémy 2021). During the 1960s and 1970s, Bradley produced a series of publications discussing the type material of historical taxa (Bradley 1964a, c, 1972, 1973, 1974b; Bradley and Betrem 1966, 1967, 1968). Revised taxonomic positions were regularly indicated for species covered by these publications. However, many species were assigned to new genus-group names without descriptions being provided for the latter. The International Code of Zoological Nomenclature (ICZN 1999, henceforth referred to as ‘ICZN’ or ‘the Code’) requires that all names published after 1930 must be accompanied by a description or definition of distinguishing characteristics and, for genus-group names, must have a fixed type species (ICZN Art. 13). Merely presenting a genus name in conjunction with a species does not suffice (though it did for names published before 1931). Multiple genus-group names employed by Betrem and Bradley do not meet these requirements, rendering them *nomina nuda*. Confusion has then arisen from uncritical citation of such names from their first appearance.

Betrem and Bradley (1972) divided the scoliids between the subfamilies Scoliinae and Campsomerinae, the latter corresponding to Ashmead's (1903) 'Elidinae'. This system has been followed by most subsequent authors (Osten 2005a), albeit with Rasnitsyn's (1977) description of the basal Proscoliinae leading to the reduction of Betrem and Bradley's (1972) subfamilies to tribes Scoliini and Campsomerini within a single subfamily Scoliinae. Rasnitsyn (1993) also established the extinct subfamily Archaeoscoliinae. A second fossil subfamily, Palaeoscoliinae, was established by Antropov et al. (2014).

Argaman (1996), in attempting to correct the 'disastrous' state of scoliid taxonomy, managed only to further confuse matters. He introduced numerous new taxa in a key to scoliid genera, dividing the family between no less than four subfamilies, 28 tribes and 143 genera. Many of these taxa were poorly defined and largely indistinguishable (Osten 2005a). For the most part, Argaman did not discuss the position of species not treated as generic types, meaning that the greater number of scoliid species were effectively unplaced in his system. Argaman also took recognition of *nomina nuda* to the point of absurdity, treating every name as defined by its first appearance and even regarding evident spelling variations as independently available taxa. Subsequent workers have either ignored Argaman's system (e.g. Gupta and Jonathan 2003) or explicitly rejected it (Osten 2005a). Nevertheless, Argaman (1996) is important in validating many of the taxa incorrectly introduced by Betrem and Bradley, as the first author to provide a description along with a type species fixation. Argaman's taxa were reviewed by Kimsey and Brothers (2016), though they omitted most of those taxa that Argaman incorrectly attributed to earlier authors. It is worth noting that the 4th edition of the ICZN (ICZN 1999) introduced the requirement that names published after 1999 must be explicitly introduced as new, making such accidental validation no longer possible.

The following catalogue of family- and genus-group names is presented in an attempt to resolve these confusions. A list of scoliid genera and species was provided by Osten (2005a) but the type species of genera were not indicated and many of the authorities for genera were inaccurate. At the end of the catalogue, a summary classification is provided for the Scoliidae.

Format

Separate listings are provided below for family- and genus-group names (including names proposed for sections within subgenera, as per ICZN Art. 10.4); family-group names are organised by stem. Names historically included within Scoliidae but not relevant to the family in its modern sense are mostly not included. References to International Code of Zoological Nomenclature (ICZN) articles are to the current edition (ICZN 1999 and emendations), available online at <https://www.iczn.org>. Names and titles originally in Cyrillic are transliterated using International Standard ISO 9:1995 (Anonymous 2007), with the addition of ě and í for the archaic letters ѣ and і, respectively. For authors and journal titles with more familiar traditional transliterations, citations are given for the latter with the ISO transliteration appended in square brackets.

Family-group names**AGOMBARD- Argaman, 1996**

Agombardini Argaman, 1996: 193.

Type genus. *Agombarda* Argaman, 1996.

ARCHAEOSCOLI- Rasnitsyn, 1993

Archaeoscoliinae Rasnitsyn, 1993: 85.

Type genus. *Archaeoscolia* Rasnitsyn, 1993.

Comments. Fossil taxon.

ASCOLI- Argaman, 1996

Ascoliini Argaman, 1996: 187.

Type genus. *Ascolia* Argaman, 1996.

AUSTROSCOLI- Argaman, 1996

Austroscoliini Argaman, 1996: 191.

Type genus. *Austroscolia* Betrem, 1927b.

BETREMI- Argaman, 1996

Betremiini Argaman, 1996: 197.

Type genus. *Betremia* Bradley, 1950.

CAMPSOMER- Bartlett, 1912

Campsomerinae Bartlett, 1912: 295, 308.

Campsomerini—Bradley and Betrem 1967: 294.

Campsomeridinae—Arnett 1985: 444.

Campsomeridini—Arnett 1985: 444.

Type genus. *Campsomeris* Guérin-Méneville, 1838.

Comments. The name ‘Campsomerinae’ is commonly attributed to Betrem and Bradley (1972), in which it is described as new. However, it had previously been used by Bartlett (1912), who refers to it on p. 295 ([Ashmead] also made two subfamilies the Scoliinae and Elidinae (now Campsomerinae)) and p. 308 (‘The fact that there is but one recurrent nervure is of subfamily value separating the Scoliinae from the Campsomerinae’). As rudimentary as these statements are, the fact that Campsomerinae can obviously be derived from the available genus name *Campsomeris* may be taken as establishing this name by indication, a possibility for family-group names published before 1930 (ICZN Art. 12.2.4).

Liu et al. (2021a) suggested that Campsomerini may not have priority over the competing name Trielidini. However, even if Bartlett’s use of Campsomerinae is not taken as establishing priority, Campsomerinae remains the senior name due to its use at a higher taxonomic level than Trielidini in Betrem and Bradley (1972; see comments under TRIELID- below).

Arnett (1985) used the forms ‘Campsomeridinae’ and ‘Campsomeridini’, evidently believing the correct root for *Campsomeris* to be Campsomerid-. However, I have not found any other usages of this form and the root ‘Campsomer-’ should be maintained by prevailing usage (ICZN Art. 29.3.1.1).

CARINOSCOLI- Argaman, 1996

Carinoscoliini Argaman, 1996: 191.

Type genus. *Carinoscolia* Betrem, 1927b.

COLP- Argaman, 1996

Colpinae Argaman, 1996: 180.

Colpini—Argaman 1996: 184.

Type genus. *Colpa* Dufour, 1841.

Comments. See comments under TRIELID- below.

COLPACAMPSOMER- Argaman, 1996

Colpacampsomerini Argaman, 1996: 209.

Type genus. *Colpacampsomeris* Betrem, 1941.

CURTAURG- Argaman, 1996

Curtaurgini Argaman, 1996: 182.

Type genus. *Curtaurga* Argaman, 1996.

DASYSCOLI- Argaman, 1996

Dasyscoliini Argaman, 1996: 181.

Type genus. *Dasyscolia* Bradley, 1951.

DIELID- Argaman, 1996

Dielidini Argaman, 1996: 212.

Type genus. *Dielis* Saussure & Sichel, 1864.

DISCOLI- Argaman, 1996

Discoliini Argaman, 1996: 197.

Type genus. *Discolia* Saussure, 1863.

DOBROBET- Argaman, 1996

Dobrobetini Argaman, 1996: 205.

Type genus. *Dobrobeta* Argaman, 1996: 206.

ELID- Ashmead, 1903

Elidinae Ashmead, 1903: 7, 8.

Type genus. *Elis* Fabricius, 1804.

Current status. Not applicable to Scoliidae.

Comments. Ashmead (1903) used this name for a collection of genera now mostly assigned to Campsomerini based on a misapplication of the type genus (see comments under *Elis* below).

HANGASORN- Argaman, 1996

Hangasornini Argaman, 1996: 197.

Type genus. *Hangasorna* Argaman, 1996.

HETEREL- Argaman, 1996

Heterelini Argaman, 1996: 183.

Type genus. *Heterelis* Costa, 1887.

HETEROGYNA Latreille, 1817

Heterogyna Latreille, 1817: 481.

Heterogynidae—Mocsáry 1881: 5–6.

Type genus. None.

Current status. Not available.

Comments. Latreille (1817) applied the name ‘Heterogyna’ to a family of Hymenoptera including representatives of modern Formicidae and Mutillidae. Mocsáry (1881) later emended the name to ‘Heterogynidae’ and used it to cover modern Mutillidae, Scoliidae, Sapygidae and Bethylidae. This name is unavailable as it was not based on an available genus-group name (ICZN Art. 11.7.1.1). The wasp genus *Heterogyna* Nagy, 1969 post-dates both Latreille (1817) and Mocsáry (1881), and does not retroactively validate the family name as Nagy (1969) intended.

LACOSI- Argaman, 1996

Lacosiini Argaman, 1996: 197–198.

Type genus. *Lacosia* Argaman, 1996.

Comments. Argaman (1996) attributed the tribe Lacosiini to ‘Schrottky, 1910’ but no such prior usage exists; it must therefore be attributed to Argaman himself.

LIACOS- Schrottky, 1910

Liacosinae Schrottky, 1910: 196.

Liacosini—Argaman 1996: 188.

Type genus. *Liacos* Guérin-Méneville, 1838.

LISOC- Argaman, 1996

Lisocini Argaman, 1996: 199.

Type genus. *Lisoca* Costa, 1858.

Current status. Junior objective synonym of Scoliini.

Comments. As *Lisoca* is an objective synonym of *Scolia*, Lisocini is likewise an objective synonym of Scoliini. Argaman (1996) maintained *Lisoca* and *Scolia* as separate genera based on the incorrect designation of *S. citreozonata* as type species of the former. However, as *Lisoca* in this sense is likewise currently regarded as a junior synonym of *Scolia*, no action need be taken to preserve Argaman's concept.

MEGACAMPSOMER- Argaman, 1996

Megacampsomerini Argaman, 1996: 211.

Type genus. *Megacampsomeris* Betrem, 1928.

MEGASCOLI- Argaman, 1996

Megascoliini Argaman, 1996: 199.

Type genus. *Megascolia* Betrem, 1928.

PALAEOSCOLI- Antropov in Antropov et al., 2014

Palaeoscoliinae Antropov in Antropov et al., 2014: 399, 401.

Type genus. *Palaeoscolia* Antropov in Antropov et al., 2014.

Comments. Fossil taxon.

PROSCOLI- Rasnitsyn, 1977

Proscoliinae Rasnitsyn, 1977: 523–524.

Type genus. *Proscolia* Rasnitsyn, 1977.

PSEUDOTRIELID- Argaman, 1996

Pseudotrielidini Argaman, 1996: 205.

Type genus. *Pseudotrielis* Betrem, 1928.

SCOLI- Latreille, 1802

Scolietae Latreille, 1802: 345.

Scolides—Leach 1815: 737.

Scolida—Leach 1815: 737.

Scoliadae—Samouelle 1819: 273.

Scolioidea—Burmeister 1834: 433.

Scholiites Newman, 1835: 399 (unjustified emendation).

Scoliidae—Newport 1839: 858.

Scoliides—Westwood 1840: 82.

Scolidae—Blanchard 1840: 370.

Scoliites—Blanchard 1840: 370.

Scoliadea—Perty 1841: 907.

Scoliidea—Costa 1858: 1.

Scoliini—Costa 1858: 5.

Scoliinae—Mocsáry 1881: 51.

Type genus. *Scolia* Fabricius, 1775.

TETRASCITON- Argaman, 1996

Tetrascitonini Argaman, 1996: 201.

Type genus. *Tetrasciton* Argaman, 1996.

TRIELID- Betrem, 1972

Trielini Betrem, 1965: 120 (*nomen nudum*).

Trielidini Betrem in Betrem & Bradley, 1972: 26.

Type genus. *Trielis* Saussure, 1863.

Comments. Liu et al. (2021a) suggested that this name may have priority over Campsomerini, hitherto regarded as its senior synonym by most authors. However, Liu et al.'s (2021a) attribution of Trielidini to 'Betrem, 1962' is in error. Betrem (1962a) is a brief note on the type status of *Trielis* Saussure, 1863 that makes no reference to its higher classification. Subsequent usages of 'Trielini' by Betrem (1965) and Bradley and Betrem (1967) represent *nomina nuda* due to their lack of an associated description, an absolute requirement for family-group names published after 1960 (ICZN Art. 13.2). The earliest available usage of Trielidini is that in Betrem and Bradley (1972), in which it is placed as a tribe of Campsomerinae.

Trielis Saussure, 1863 is currently placed as a junior synonym of *Colpa* Dufour, 1841. A recent molecular phylogenetic analysis of Scoliidae (Khoury et al. 2022) suggested that *Colpa* is more closely related to Scoliini than to other genera currently included in Campsomerini. If *Colpa* is raised to the status of its own tribe, the name Trielidini takes priority over Colpinae Argaman, 1996.

TRISCOLO- Argaman, 1996

Trisciloini Argaman, 1996: 201.

Type genus. *Trisciloa* Gribodo, 1893.

TRISCOLI- Argaman, 1996

Triscoliini Argaman, 1996: 193.

Type genus. *Triscolia* Saussure, 1863.

YCASBRA- Argaman, 1996

Ycasbraini Argaman, 1996: 191.

Type genus. *Ycasbraia* Argaman, 1996.

Genus-group names

Unless otherwise indicated, all scoliid genus-group names are feminine in gender.

Aelocampsomeris Bradley, 1957b

Campsomeris subgenus *Aelocampsomeris* Bradley, 1957b: 74.

Campsomeris subgenus *Aeolocampsomeris*—Bradley 1957b: 68 (incorrect original spelling).

Type species. *Campsomeris costalis* Lepeletier de Saint-Fargeau, 1845, by original designation.

Comments. This name appears as both ‘*Aelocampsomeris*’ and ‘*Aeolocampsomeris*’ in Bradley (1957b). Bradley’s (1964b) subsequent usage of ‘*Aelocampsomeris*’ sets that as the correct spelling (ICZN Art. 24.2.4). Bradley (1957b) listed *Scolia variegata* Fabricius, 1793 as a synonym of *Campsomeris costalis*; *S. variegata* obviously takes priority and this species is currently known as *Aelocampsomeris variegata*.

Agombarda Argaman, 1996

Agombarda Argaman, 1996: 194.

Type species. *Scolia atra* Illiger, 1802, by original designation.

Annulimeris Betrem, 1967

Campsomeriella subgenus *Annulimeris* Betrem, 1967: 26, 28–29.

Type species. *Tiphia annulata* Fabricius, 1793, by original designation.

Araripescolia Nel, Escuillie & Garrouste, 2013

Araripescolia Nel, Escuillie & Garrouste, 2013: 396.

Type species. *Araripescolia magnifica* Nel, Escuillie & Garrouste, 2013, by original designation.

Comments. Fossil taxon (Early Cretaceous).

***Archaeoscolia* Rasnitsyn, 1993**

Archaeoscolia Rasnitsyn, 1993: 86.

Type species. *Archaeoscolia senilis* Rasnitsyn, 1993, by original designation.

Comments. Fossil taxon (Early Cretaceous).

***Ascoli* Saussure, 1855**

Scolia subgenus *Ascoli* Guérin-Méneville, 1838: 247 (not available).

Ascoli Saussure, 1855: 33, 35, 36.

Type species. Either *Scolia flavifrons* Fabricius, 1775, by subsequent monotypy (Bartlett 1912), or *Scolia haemorrhoidalis* Fabricius, 1787, by subsequent designation (Betrem and Bradley 1964) (see below).

Comments. Unused senior synonym of *Megascolia* Betrem, 1928 and *Regiscolia* Betrem & Bradley, 1964, proposed for suppression. Gender masculine (ICZN Art. 30.2.4; D. Yanega, pers. comm.).

The name *Ascoli* has lurked in the corners of scoliid nomenclature for almost two hundred years as a vexatious boojum that has never been effectively exorcised. Guérin-Méneville (1838) published *Ascoli* as a hypothetical taxon (stating, “*Nous n’en connaissons pas encore*” [‘We don’t know any yet’]), excluded from availability under the Code (ICZN Art. 1.3.1). Nevertheless, Saussure (1855) formally synonymised *Ascoli* with *Scolia*, stating that the two genera were separated by characters potentially subject to individual variation, and implying the existence of specimens that might otherwise have been assigned to ‘*Ascoli*’. Saussure and Sichel (1864) cited *Ascoli* as an apparent synonym of their subgenus *Triscolia*. Names published in synonymy are not thereby made available (ICZN Art. 11.6) unless they were subsequently treated as valid prior to 1961 (ICZN Art. 11.6.1). Schrottky (1910) fulfilled this requirement by including *Ascoli* in a key to scoliid genera, preceded by the comment “*Anstelle der bisherigen Triscolia Sauss. und Discolia Sauss. müssen die älteren Namen Guérins Ascoli und Lacosi gebraucht werden*” [‘instead of the previous *Triscolia* Sauss. and *Discolia* Sauss., Guérin’s older names *Ascoli* and *Lacosi* must be used’]. Though Schrottky (1910) did not explicitly name any species in combination with *Ascoli*, it may safely be presumed that he intended it to cover all species included in *Triscolia* by Saussure and Sichel (1864).

For the most part, subsequent authors did not follow Schrottky’s (1910) usage of *Ascoli*. Bartlett (1912) recognised Guérin-Méneville’s (1838) original usage as hypothetical and maintained recognition of *Triscolia*, with *Scolia flavifrons* Fabricius, 1775 designated as its type species. Nevertheless, Bartlett also noted that, “*If [Ascoli] should ever be adopted the writer sees no reason why Scolia flavifrons Fab. could not still remain the type under this older name*”. *Scolia flavifrons* might be considered the first species name associated with *Ascoli* as a generic name published

in synonymy, and therefore its type species by monotypy (ICZN Art. 67.12), but see below.

Betrem (1926), in a brief discussion of the generic arrangement of scoliids, noted that previous authors had divided *Scolia* into the subgenera *Scolia* and “*Ascoli* Guér. (= *Triscolia* S. et S.)”, and opined that, “*De Indische vertegenwoordigers van het oude subgenus Ascoli Guér (=Triscolia S. et S.) blijken tot een 4-tal natuurlijke subgenera te behooren*” [‘The Indian representatives of the old subgenus *Ascoli*... appear to belong to four natural subgenera’]. He cited four examples of such species: *Scolia haemorrhoidalis* Fabricius, 1787, *S. procer* Illiger, 1802, *S. rubiginosa* Fabricius, 1793 and *S. kollari* Saussure, 1859. It is ambiguous whether Betrem (1926) intended to use *Ascoli* as a valid taxon or not. Krombein (1951) listed *Ascoli* “Saussure and Sichel, 1864” as a synonym of *Triscolia* and designated *Scolia flavifrons* Fabricius, 1775 as type species, following Bartlett (1912). Both Bartlett (1912) and Krombein (1951) intended to fix *Ascoli* as an objective synonym of *Triscolia*. Unfortunately, neither author was aware that *Triscolia* was first published by Saussure (1863), not Saussure and Sichel (1864), and its correct type species was *S. badia* Saussure, 1863 (see below). Also, though Krombein attributed *Ascoli* to Saussure and Sichel (1864), its initial publication in synonymy had been by Saussure (1855), so it would retain priority over *Triscolia* even if the two were synonymous.

Jacot-Guillarmod et al. (1963) petitioned the ICZN to reject both *Ascoli* Guérin-Méneville, 1838 and *Ascoli* Betrem, 1926 as unavailable, essentially arguing that Betrem had validated *Ascoli* through the inclusion of named species but that this had been unintentional. Schrottky (1910) was thought to have continued to treat *Ascoli* as hypothetical, overlooking his synonymisation of *Ascoli* and *Triscolia*. Nevertheless, “*just in case the Commission should rule that Ascoli Betrem is available*”, Betrem and Bradley (1964) designated *Scolia haemorrhoidalis* as type species of *Ascoli* from among those mentioned by Betrem (1926). Jacot-Guillarmod et al. (1965) then modified their proposal, arguing that Saussure and Sichel’s (1864) publication of *Ascoli* as a synonym of *Triscolia* automatically made the two names objective synonyms, with *S. badia* the correct type species for both. Unfortunately, no official decision by the ICZN on this matter was ever published.

The proper status of *Ascoli* remains open to debate. Unfortunately, Schrottky’s (1910) usage of this name as valid means that it cannot simply be dismissed as having never been made available. Instead, it may be considered as published in synonymy by Saussure (1855). However, Jacot-Guillarmod et al.’s (1965) opinion that *Ascoli* was automatically an objective synonym of *Triscolia* is incorrect. ICZN Art. 67.12 states that the type species of a genus-group name first published in synonymy is that species (or one of those species) first directly associated with it by name. This would suggest that the type species of *Ascoli* should be *Scolia flavifrons*, as cited by Bartlett (1912). However, this designation might be considered invalid according to ICZN Art. 67.2.5, which excludes doubtfully or conditionally included species from consideration as types. Similar questions affect Betrem (1926). If neither Bartlett (1912) nor Betrem (1926) is considered to have validly associated species with *Ascoli*, then its type species becomes *S. flavifrons* as designated by Krombein (1951). If Bartlett’s (1912)

inclusion is not considered valid but Betrem's (1926) inclusion is, then the type species must be selected from those cited by the latter publication, making Betrem and Bradley's (1964) designation of *Scolia haemorrhoidalis* valid. The question seems all but impossible to decide.

As it happens, both *S. haemorrhoidalis* and *S. flavifrons* are currently regarded as conspecific with *Megascolia* (*Regiscolia*) *maculata* (Drury, 1773) (Hamon and Osten 1994). *Ascoli* is therefore a senior synonym of both *Megascolia* Betrem, 1928 and *Regiscolia* Betrem & Bradley, 1964, whichever its correct type species. Considering that *Ascoli* has almost universally been rejected since its original publication, it seems inappropriate to displace these established names in its favour. Until such a time as it is formally suppressed by the ICZN, *Ascoli* is provisionally maintained as invalid.

***Ascolia* Argaman, 1996**

Ascolia Argaman, 1996: 188.

Type species. *Scolia flavifrons* Fabricius, 1775, by original designation.

Comments. Argaman (1996) introduced *Ascolia* as an intended emendation of *Ascoli* Guérin-Méneville, 1838, an unavailable name (see above). *Ascolia* should therefore be treated as newly introduced by Argaman (1996), as noted by Kimsey and Brothers (2016), and is an objective junior synonym of *Regiscolia* Betrem & Bradley, 1964.

***Aureimeris* Betrem in Betrem & Bradley, 1972**

Aureimeris Betrem in Betrem & Bradley, 1972: 244.

Type species. *Elis africana* Saussure, 1859, by original designation.

***Australelis* Betrem, 1962a**

Trielis subgenus *Australelis* Betrem, 1962a: 146.

Austromeris—Betrem and Bradley 1972: 33 (misspelling).

Type species. *Elis consanguinea* Saussure, 1855, by original designation.

Comments. *Elis consanguinea* was reduced to a variety of *Scolia anthracina* Burmeister, 1854 (now *Australelis anthracina*) by Turner (1909). Argaman (1996) lists 'Campsomeria Bradley, 1966' as a synonym of *Australelis*; this name appears in Bradley and Betrem (1966) as a clear misprint for *Campsomeris* Guérin-Méneville, 1838 and nothing more.

***Austroscolia* Betrem, 1927b**

Scolia subgenus *Austroscolia* Betrem, 1927b: xcvi.

Type species. *Scolia ruficeps* Smith, 1855, by original designation.

Comments. Betrem (1928) mistakenly stated the type species to be *Scolia nitida* Smith, 1858.

***Bagonasuna* Argaman, 1996**

Bagonasuna Argaman, 1996: 186.

Type species. *Trielis tartara* Saussure, 1880, by original designation.

Comments. Type species misattributed by Argaman (1996) to Morawitz (1897) who merely redescribed Saussure's (1880) species.

***Batalanga* Argaman, 1996**

Batalanga Argaman, 1996: 205.

Type species. *Elis phalerata* Saussure, 1858, by original designation.

Comments. Argaman (1996) proposed *Batalanga* as a replacement name for *Phalerimeris* Betrem in Bradley & Betrem, 1967, under the belief that the latter was preoccupied by Bradley and Betrem (1966). However, the usage of *Phalerimeris* in the 1966 paper was as a *nomen nudum* only, and thus unavailable. As such, *Batalanga* stands as a junior objective synonym of *Phalerimeris* Betrem in Bradley & Betrem, 1967.

***Bellimeris* Argaman, 1996**

Megacampsomeris subgenus *Bellimeris* Bradley, 1972: 6 (*nomen nudum*).

Bellimeris Argaman, 1996: 213.

Type species. *Elis bella* Bingham, 1897, by original designation.

Comments. *Bellimeris* appeared as a *nomen nudum* in Bradley (1972), in the combination '*Megacampsomeris* (*Bellimeris*) *bella*' attributed to Betrem. The first author to provide a description for *Bellimeris* was Argaman (1996) to whom it must be attributed despite his own citation of 'Betrem, 1972'.

Bellimeris has subsequently been accepted as a valid genus (Schulten et al. 2011; Kim 2021), synonymised with *Sericocampsomeris* (Gupta and Jonathan 2003), or effectively synonymised with *Megacampsomeris* (Osten 2005a; Liu et al. 2021a). Until its position is better established, it is provisionally listed herein as a distinct genus.

***Betremia* Bradley, 1950**

Betremia Bradley, 1950: 358.

Type species. *Scolia apicipennis* Turner, 1911, by original designation.

***Borongorba* Argaman, 1996**

Borongorba Argaman, 1996: 213.

Type species. *Scolia habrocoma* Smith, 1855, by original designation.

***Bradleyella* Krombein, 1963**

Scolia subgenus *Bradleyella* Krombein, 1963: 629.

Type species. *Scolia vulsa* Krombein, 1963, by original designation.

***Burgamurga* Argaman, 1996**

Burgamurga Argaman, 1996: 194.

Type species. *Scolia cyanipennis* Fabricius, 1804, by original designation.

***Buzatlana* Argaman, 1996**

Buzatlana Argaman, 1996: 199–200.

Type species. *Sphex fuciformis* Scopoli, 1786, by original designation.

***Campsomeriella* Betrem, 1941**

Campsomeris subgenus *Campsomeriella* Betrem, 1941: 86–87.

Type species. *Scolia thoracica* Fabricius, 1787, by original designation.

***Campsomeris* Guérin-Ménéville, 1838**

Scolia subgenus *Campsomeris* Guérin-Ménéville, 1838: 247.

Compsomeris—Ashmead 1903: 8 (misspelling)

Campsomeria—Uchida 1933: 233 (misspelling).

Type species. *Scolia atrata* Fabricius, 1775, by subsequent designation (Bequaert 1926).

Comments. Guérin-Ménéville (1838) attributed this name to a manuscript by Lepeletier de Saint-Fargeau, who would not use it in print until 1845. Betrem (1927a) designated *Campsomeris aureicollis* Lepeletier de Saint-Fargeau, 1845 as type species, in the mistaken belief that the genus was first published by Lepeletier de Saint-Fargeau (1845). After recognising Guérin-Ménéville's (1838) earlier publication, Betrem (1927b) replaced this designation with *Scolia thoracica* Fabricius, 1787. Both designations were preoccupied by Bequaert (1926).

***Campsoscolia* Betrem, 1933**

Campsoscolia Betrem, 1933: 259–260.

Type species. *Scolia sexmaculata* Fabricius, 1782, by original designation.

Comments. *Scolia sexmaculata* Fabricius, 1782 is a distinct species from *Vespa sexmaculata* Müller in Allionius, 1766, itself now included in *Scolia*, but the two species are not currently considered congeneric. Costa (1858) synonymised *S. sexmaculata* Fabricius with the simultaneously published *S. interrupta* Fabricius, 1782, now *Colpa interrupta*, and awarded priority to the latter. Osten's (2005a) listing of *S. sexmaculata* as having priority over *S. interrupta* is in error.

***Canimeris* Betrem, 1972**

Megameris subgenus *Megameris* section *Canimeris* Betrem in Betrem & Bradley, 1972: 174.

Type species. *Megameris canens* Betrem & Bradley, 1972, by original designation.

***Carbonelis* Betrem in Betrem & Bradley, 1972**

Trielis subgenus *Carbonelis* Bradley & Betrem, 1968: 325 (*nomen nudum*).

Trielis subgenus *Carbonelis* Betrem in Betrem & Bradley, 1972: 59.

Type species. *Scolia carbonaria* Klug, 1832, by original designation.

***Carinoscolia* Betrem, 1927**

Scolia subgenus *Carinoscolia* Betrem, 1927b: xcvi.

Type species. *Scolia opalina* Smith, 1857, by original designation.

***Catharinimeris* Argaman, 1996**

Campsomeris subgenus *Catharinimeris* Bradley, 1964a: 18 (*nomen nudum*).

Catharinimeris Argaman, 1996: 207.

Type species. *Scolia deserta* Tullgren, 1904, by original designation.

Comments. This name appears as a *nomen nudum* in Bradley (1964a) in the combination ‘*Campsomeris (Catharinimeris) lundi*’. It presumably represents a variant spelling of the genus later described as *Cathimeris* in Betrem and Bradley (1972), in which *C. lundi* is synonymised with *Cathimeris deserta* (Tullgren 1904). Nevertheless, Argaman (1996) treated *Catharinimeris* and *Cathimeris* as distinct taxa, though the former must be attributed to Argaman himself as the first author to provide a description. Argaman (1996) cited the type species of *Catharinimeris* as ‘(*Campsomeris lundi* Betrem, 1964) = *Scolia deserta* Tullgren, 1904’; this is here accepted as a designation of *Scolia deserta* as type species.

***Cathimeris* Betrem in Betrem & Bradley, 1972**

Cathimeris Betrem in Betrem & Bradley, 1972: 199–202.

Type species. *Elis hymenaea* Gerstaecker, 1871, by original designation.

***Charimeris* Betrem in Betrem & Bradley, 1972**

Charimeris Betrem in Betrem & Bradley, 1972: 192–193.

Type species. *Charimeris jacoti* Betrem in Betrem & Bradley, 1972, by original designation.

***Cillimeris* Betrem in Betrem & Bradley, 1972**

Megameris subgenus *Cillimeris* Betrem in Betrem & Bradley, 1972: 179–180.

Type species. *Megameris penicillifera* Betrem & Bradley, 1972, by original designation.

***Citberaysa* Argaman, 1996**

Citberaysa Argaman, 1996: 192.

Type species. *Scolia ebenina* Saussure, 1858, by original designation.

***Clypeiscolia* Bradley, 1974a**

Scolia subgenus *Clypeiscolia* Bradley 1974a: 186.

Type species. *Scolia clypealis* Bradley, 1974a, by original designation.

Comments. *Clypeiscolia* and its type species were omitted from Osten's (2005a) listing. It is retained as a subgenus of *Scolia* pending future revision.

***Colpa* Dufour, 1841**

Colpa Dufour, 1841: 378, 413, 486.

Type species. *Scolia interrupta* Fabricius, 1782, by monotypy.

Comments. Dufour (1841) cited this name as used for a new unpublished genus by Lepeletier de Saint-Fargeau, who would not use it in print until 1845. Betrem (1928) designated *Colpa peregrina* Lepeletier de Saint-Fargeau, 1845 as type species, under the mistaken belief that this represented the genus' earliest publication.

***Colpacampsomeris* Argaman, 1996**

Campsomeris subgenus *Colpacampsomeris* Betrem, 1941: 101–102 (*nomen nudum*).
Colpacampsomeris Argaman, 1996: 209.

Type species. *Scolia indica* Saussure, 1855, by original designation.

Comments. *Colpacampsomeris* provides a prime example of the confusion arising from J. G. Betrem's often indirect manner of presenting taxonomic changes. The name was first used by Betrem (1941) with the statement on p. 96, "*J'en ai déjà détaché* [from *Dielis*] *les sous-genres... Sericocampsomeris et Colpacampsomeris, qui comprennent mon groupe VI*" ['I have already separated the subgenera *Sericocampsomeris* and *Colpacampsomeris*, which represents my group VI'], and later on pp. 101–102, "*J'ai divisé le groupe VI de mon ancien sous-genre Dielis en deux groupes que j'ai élevés à la valeur de sous-genre. Le premier de ces sous-genres est le nouveau sous-genre Colpacampsomeris. La forme typique est la C. indica*" ['I have divided group VI of my old subgenus *Dielis* into two groups that I have elevated to the value of subgenus. The first of these subgenera is

the new subgenus *Colpacampsomeris*. The typical form is *C. indica*']. However, no direct description was provided for the new subgenus, making it potentially a *nomen nudum*. The Code does allow a bibliographic reference to a pre-existing description to stand in place of a direct description (ICZN Art. 13.1) but this allowance cannot be applied here. Even if one is charitable enough to accept the reference to ‘*mon groupe VI*’ as an inferred reference to Betrem’s (1928) description of such a group, it seems clear that Betrem intended *Colpacampsomeris* to encompass only part of *Dielis* Group VI, not its entirety, and the original description of the latter cannot be directly applied to the former.

Despite multiple subsequent usages of *Colpacampsomeris* to refer to the large southern Asian species *C. indica* (e.g. Bradley and Betrem 1967; Krombein 1978), no actual description of the genus with an associated type species designation appeared until Argaman (1996). Though still attributed therein to ‘Betrem, 1941’, *Colpacampsomeris* must be attributed to Argaman himself.

***Cretaproscolia* Rasnitsyn & Martínez-Delclòs, 1999**

Cretaproscolia Rasnitsyn & Martínez-Delclòs, 1999: 771.

Type species. *Cretaproscolia josai* Rasnitsyn & Martínez-Delclòs, 1999, by original designation.

Comments. Fossil taxon (Lower Cretaceous).

***Cretoscolia* Rasnitsyn, 1993**

Cretoscolia Rasnitsyn, 1993: 88.

Type species. *Cretoscolia promissiva* Rasnitsyn, 1993, by original designation.

Comments. Fossil taxon (Late Cretaceous).

***Crioscolia* Bradley, 1951**

Campsoscolia subgenus *Crioscolia* Bradley, 1951: 431–432.

Type species. *Campsomeris flammicoma* Bradley, 1928, by original designation.

Comments. Betrem and Bradley (1972) raised *Crioscolia* to the status of a distinct genus. For unspecified reasons, this action was not followed by Osten (2005a), but it is maintained herein.

***Curtaurga* Argaman, 1996**

Curtaurga Argaman, 1996: 183.

Type species. *Scolia aliena* Klug, 1832, by original designation.

Comments. Unnecessarily proposed by Argaman (1996) as a replacement name for *Guigliana* Betrem in Bradley & Betrem, 1967, under the mistaken belief that the latter was preoccupied by the use of *Guigliana* as a *nomen nudum* in Bradley (1964c).

***Dasyscolia* Bradley, 1951**

Campsoscolia subgenus *Dasyscolia* Bradley, 1951: 432, 437.

Type species. *Tiphia ciliata* Fabricius, 1787, by original designation.

***Dielis* Saussure & Sichel, 1864**

Elis subgenus *Dielis* Saussure & Sichel, 1864: 161.

Type species. *Scolia radula* Fabricius, 1775, by subsequent designation (Betrem 1928).

Comments. The type status of this genus was discussed by Betrem (1962b) who confirmed *Scolia radula* as type. Krombein (1951) miscited *Tiphia radula* Fabricius, 1775, which Betrem (1962b) made type of *Radumeris* Betrem, 1962b. *Scolia radula* was synonymised with *Sphex plumipes* Drury, 1770 (now *Dielis plumipes*) by Saussure and Sichel (1864).

***Diliacos* Saussure & Sichel, 1864**

Diliacos Saussure & Sichel, 1864: 36.

Type species. *Campsomeris violacea* Lepeletier de Saint-Fargeau, 1845, by subsequent designation (Ashmead 1903).

Comments. Bradley (1957c) renamed the type species *Scolia* (*Diliacos*) *praslini* Bradley, 1957, due to its preoccupation in the genus *Scolia* by *S. violacea* Panzer, 1799. As this replacement occurred prior to 1961, it remains valid whether *S. praslini* is included in *Scolia* or not (ICZN Art. 59.3).

***Discolia* Saussure, 1863**

Scolia subgenus *Discolia* Saussure, 1863: 18.

Type species. *Scolia nobilitata* Fabricius, 1804, by subsequent designation (Betrem and Bradley 1964).

Comments. Ashmead (1903) designated *Scolia apicicornis* Guérin-Méneville, 1838 as type species, under the belief that *Discolia* was first published by Saussure and Sichel (1864). As the name had previously been used by Saussure (1863), *S. apicicornis* is not among the eligible originally included species.

***Dobrobeta* Argaman, 1996**

Dobrobeta Argaman, 1996: 206.

Type species. *Campsomeris socotrana* Kirby, 1900, by original designation.

***Elis* Fabricius, 1804**

Elis Fabricius, 1804: 248.

Type species. *Scolia sexcincta* Fabricius, 1775, by subsequent designation (Bingham 1897).

Comments. *Elis* was originally established for an assemblage of species now divided between the families Scoliidae and Thynnidae. The type species is now regarded as a synonym of *Myzinum quinquecinctum* (Fabricius, 1775), a species of Thynnidae (Krombein 1938; Bartalucci 2004). Ashmead's (1903) later type designation of *Scolia septemcincta* Fabricius, 1775, a synonym of the scoliid *Radumeris radula* (Fabricius, 1775) (Elliott 2011), is not valid.

***Elpaholta* Argaman, 1996**

Elpaholta Argaman, 1996: 194.

Type species. *Scolia fulvifrons* Saussure, 1855, by original designation.

***Enigmatimeris* Betrem in Betrem & Bradley, 1972**

Aureimeris subgenus *Enigmatimeris* Betrem in Betrem & Bradley, 1972: 256.

Type species. *Scolia fasciatella* Klug, 1832, by original designation.

***Extrameris* Betrem in Betrem & Bradley, 1972**

Extrameris Betrem in Betrem & Bradley, 1972: 158–159.

Type species. *Extrameris mansuefactoides* Betrem & Bradley, 1972, by original designation.

***Fascimeris* Betrem in Betrem & Bradley, 1972**

Megameris subgenus *Fascimeris* Betrem in Betrem & Bradley, 1972: 175–176.

Type species. *Megameris calcigera* Betrem & Bradley, 1972, by original designation.

***Fasciomeris* Argaman, 1996**

Campsomeris subgenus *Fasciomeris* Bradley, 1964a: 23 (*nomen nudum*).

Fasciomeris Argaman, 1996: 211.

Type species. *Scolia quinquefasciata* Fabricius, 1782, by original designation.

Comments. This name was used as a *nomen nudum* by Bradley (1964a) in the combination ‘*Campsomeris (Fasciomeris) quinquefasciata*’. It presumably represents a variant spelling of the taxon later described as *Fascimeris* by Betrem in Betrem and Bradley (1972). Nevertheless, Argaman (1996) treated *Fascimeris* and *Fasciomeris* as distinct taxa. Because *Fascimeris* and *Fasciomeris* differ in spelling, they must both be accepted as available names (ICZN Art. 56.2), with the latter attributed to Argaman himself as the first author to provide a description.

***Fiharbuxa* Argaman, 1996**

Fiharbuxa Argaman, 1996: 212.

Type species. *Scolia prismatica* Smith, 1855, by original designation.

***Floriscolia* Rasnitsyn, 1993**

Floriscolia Rasnitsyn, 1993: 93.

Type species. *Floriscolia relictata* Rasnitsyn, 1993, by original designation.

Comments. Fossil taxon (Oligocene).

***Garantimeris* Argaman, 1996**

Cathimeris subgenus *Garantimeris* Betrem in Betrem & Bradley, 1972: 242 (*nomen nudum*).

Garantimeris Argaman, 1996: 207.

Type species. *Elis auraria* Saussure, 1858, by original designation.

Comments. When this name was first used by Betrem and Bradley (1972), it was described in full but remained unavailable as no type species was fixed (ICZN Art. 13.3). The criteria for availability were not met until Argaman (1996) who must therefore be regarded as this taxon's author.

***Gondiconda* Argaman, 1996**

Gondiconda Argaman, 1996: 210.

Type species. *Elis vittata* Sichel in Saussure & Sichel, 1864, by original designation.

***Guigliana* Betrem in Bradley & Betrem, 1967**

Guigliana Betrem, 1965: 120 (*nomen nudum*).

Guigliana Betrem in Bradley & Betrem, 1967: 293–294.

Type species. *Scolia aliena* Klug, 1832, by original designation.

Comments. See below for comments on *Guigliana* Argaman, 1996.

***Guigliana* Argaman, 1996**

Scolia subgenus *Guigliana* Bradley, 1964c: 192 (*nomen nudum*).

Guigliana Argaman, 1996: 196.

Type species. *Sphex azurea* Christ, 1791, by original designation.

Comments. It is debatable whether this should be treated as a separately available name from *Guigliana* Betrem in Bradley & Betrem, 1967, or simply a variant application. However, the type species nominated in both cases are widely divergent, belonging to separate tribes of the Scoliinae, and it seems unlikely that Bradley and Betrem would have ever considered them congeneric. *Guigliana* was used by Bradley (1964c) as a *nomen nudum*, in the combination '*Scolia (Guigliana) azurea azurea*'. Argaman (1996) misinterpreted this usage as available, preoccupying Bradley and Betrem (1967), and unnecessarily coined *Curtaurga* Argaman, 1996 as a replacement name for the latter. Argaman would then be the correct author of *Guigliana* as typified by *Sphex azurea*, as the first

author to provide a description, despite attributing it to ‘Bradley (1964)’. If accepted as a validly available name, *Guigliana* Argaman is a junior homonym of *Guigliana* Betrem.

***Hangasorna* Argaman, 1996**

Hangasorna Argaman, 1996: 197.

Type species. *Scolia quadripustulata* Fabricius, 1782, by original designation.

Comments. *Scolia quadripustulata* has a long history of confusion with *S. binotata* Fabricius, 1804 (Gupta and Jonathan 2003; Taylor and Barthélémy 2021). It is uncertain which of these species Argaman (1996) had before him when describing *Hangasorna*. Some of the features described are equally applicable to both but the description of the male flagellum as strongly clavate suggests *S. binotata* rather than *S. quadripustulata* (Gupta and Jonathan 2003). Nevertheless, as *Hangasorna* is likely to remain a synonym of *Scolia* subgenus *Discolia* whichever species is accepted as type, Argaman (1996) is here accepted as having correctly designated *S. quadripustulata*, in accordance with ICZN Art. 70.3.1.

***Haralambia* Argaman, 1996**

Haralambia Argaman, 1996: 215.

Type species. *Tiphia dorsata* Fabricius, 1787, by original designation.

***Hayderiba* Argaman, 1996**

Hayderiba Argaman, 1996: 209.

Type species. *Colpa peregrina* Lepeletier de Saint-Fargeau, 1845, by original designation.

Comments. Proposed by Argaman (1996) to refer to *Colpa* in the sense of Lepeletier de Saint-Fargeau (1845), not Dufour (1841).

***Hesperoscolia* Bradley, 1974b**

Scolia subgenus *Hesperoscolia* Bradley, 1974b: 419.

Type species. *Scolia rufiventris* Fabricius, 1804, by original designation.

Comments. Osten (2005a) listed *Hesperoscolia* as a subgenus on p. 26 but treated it as a distinct genus in the following list of species names. It has been retained as a subgenus of *Scolia* by subsequent authors (Santos et al. 2015; Añino et al. 2020).

***Heterelis* Costa, 1887**

Heterelis Costa, 1887: 104.

Hetrelis—Osten 2005b: 1454 (misspelling).

Type species. *Scolia quinquecincta* Fabricius, 1793, by subsequent designation (ICZN 1985).

Comments. *Heterelis* was established by Costa (1887) with only a single included species, '*Elis villosa* Fab.' However, as explained by Betrem et al. (1963), this was based on a misidentification of *Tiphia villosa* Fabricius, 1793 which is not a scoliid. Betrem et al. (1963) argued that the species actually described by Costa (1887) was *Scolia quinquecincta* Fabricius, 1793, whose status as type species was confirmed by the ICZN (1985).

***Hexelis* Betrem in Betrem & Bradley, 1972**

Guigliana subgenus *Hexelis* Betrem in Betrem & Bradley, 1972: 73.

Type species. *Guigliana hexensis* Betrem in Betrem & Bradley, 1972, by original designation.

***Hirtimeris* Betrem, 1967**

Campsomeriella subgenus *Campsomeriella* section *Hirtimeris* Betrem, 1967: 27, 29.

Type species. *Scolia hirticollis* Fabricius, 1804, by original designation.

Comments. Originally published as an infrageneric section, *Hirtimeris* was later used as a full subgenus by Bradley (1973, 1974b). It was not listed by Osten (2005a) who included *S. hirticollis* in *Campsomeriella* without a subgenus placement.

***Hitfoidea* Argaman, 1996**

Hitfoidea Argaman, 1996: 192.

Type species. *Scolia carnifex* Coquerel, 1855, by original designation.

***Iforborha* Argaman, 1996**

Iforborha Argaman, 1996: 203.

Type species. *Tiphia collaris* Fabricius, 1775, by original designation.

***Iksalonca* Argaman, 1996**

Iksalonca Argaman, 1996: 198–199.

Type species. *Scolia jurinei* Saussure, 1855, by original designation.

Comments. *Scolia jurinei* was synonymised with *S. affinis* Guérin-Méneville, 1838 by Bradley (1974b).

***Ilkamilka* Argaman, 1996**

Ilkamilka Argaman, 1996: 212.

Type species. *Scolia luzonensis* Rohwer, 1921, by original designation.

Comments. *Ilkamilka* was synonymised with *Laevicampsomeris* by Castagnet (2021).

***Immanimeris* Betrem in Betrem & Bradley, 1972**

Megameris subgenus *Immanimeris* Betrem in Betrem & Bradley, 1972: 189.

Type species. *Megameris immanis* Betrem & Bradley, 1972, by original designation.

***Junodelis* Betrem in Betrem & Bradley, 1972**

Trielis subgenus *Junodelis* Betrem in Betrem & Bradley, 1972: 56–57.

Type species. *Trielis junodi* Betrem & Bradley, 1972, by original designation.

***Jupadora* Argaman, 1996**

Jupadora Argaman, 1996: 193.

Type species. *Scolia cereberia* Bradley, 1959, by original designation (misspelled as ‘*cerberia*’).

***Katapolda* Argaman, 1996**

Katapolda Argaman, 1996: 198.

Type species. *Scolia desidiosa* Bingham, 1896, by original designation.

***Kokarevta* Argaman, 1996**

Kokarevta Argaman, 1996: 200.

Type species. *Tiphia histrionica* Fabricius, 1787, by original designation.

***Kukkiya* Argaman, 1996**

Kukkiya Argaman, 1996: 187.

Type species. *Scolia moricei* Saunders, 1901, by original designation.

***Lacosi* Guérin-Méneville, 1838**

Scolia subgenus *Lacosi* Guérin-Méneville, 1838: 247.

Type species. *Scolia quadripunctata* Fabricius, 1775, by subsequent designation by Bequaert (1926).

Comments. Junior objective synonym of *Scolia* Fabricius, 1775. Gender masculine (ICZN Art. 30.2.4; D. Yanega, pers. comm.). Betrem (1928) erroneously designated *S. quadripustulata* Fabricius, 1782 as type species; not only is this designation preoccupied by Bequaert (1926) but *S. quadripustulata* was not among the originally included species.

***Lacosia* Argaman, 1996**

Lacosia Argaman, 1996: 199.

Type species. *Scolia quadripunctata* Fabricius, 1775, by objective synonymy with *Lacosi* Guérin-Méneville, 1838 (ICZN Art. 67.8).

Comments. *Lacosia* was ostensibly introduced as an emendation of *Lacosi* Guérin-Méneville, 1838, but Argaman's (1996) treatment of this name can only be described as baffling. Argaman emended the names *Ascoli* and *Lacosi* to *Ascolia* and *Lacosia* on the basis of their being “grammatically invalid arbitrary combination[s] of letters”. Under the current version of the Code, such an emendation is not justified as arbitrary names are explicitly permitted (ICZN Art. 11.3), and *Lacosia* has not been validated by prevailing usage (see ICZN Art. 33.2.3.1). Argaman (1996) stated that *Scolia pygmaea* Saussure, 1858 was the type species of *Lacosia* “through the inclusion by Saussure (1858)”. However, *S. pygmaea* was only one of numerous species included in *Lacosi* by Saussure (1858), and was certainly not one of the species originally included by Guérin-Méneville (1838). Earlier designations of a type species by Bequaert (1926) and Betrem (1928) were rejected on the basis that they were “selected as type of *Lacosi*, a generic group

name without status in nomenclature”, but that supposed lack of status was apparently no barrier to Argaman continuing to attribute his own concept to Guérin-Méneville!

As noted by Kimsey and Brothers (2016), *Lacosia* must be attributed to Argaman himself (ICZN Art. 33.2.3). However, ICZN Arts 33.2.3 and 67.8 state that any genus name introduced as an unjustified emendation is an objective synonym of the original name emended. The type species of *Lacosia* is therefore *Scolia quadripunctata* Fabricius, 1775, despite Argaman’s (1996) indication to the contrary, and *Lacosia* is also an objective synonym of *Scolia* Fabricius, 1775.

The status of *Scolia pygmaea* is uncertain. Petersen (1970) synonymised it with *Scolia hottentotta* Saussure, 1858, a species of subgenus *Scolia* (*contra* its listing in subgenus *Discolia* by Osten 2005a). This synonymy was disputed by Argaman (1996) who designated a neotype for *S. pygmaea*. Argaman’s neotype designation does not meet the requirements of ICZN Art. 75.3; most notably, Argaman does not attribute the neotype to a recognised scientific collection (the description of Argaman’s habits by Kimsey and Brothers 2016 suggests that it may have been in Argaman’s personal collection and may no longer be identifiable). Final resolution of this question is beyond the scope of the current publication.

***Laevicampsomeris* Betrem, 1933**

Campsomeris subgenus *Laevicampsomeris* Betrem, 1933: 238.

Type species. *Scolia nigerrima* Smith, 1861, by original designation.

***Laeviscolia* Betrem, 1928**

Scolia subgenus *Laeviscolia* Betrem, 1928: 222.

Type species. *Scolia frontalis* Saussure, 1855, by original designation.

***Laskariska* Argaman, 1996**

Laskariska Argaman, 1996: 188.

Type species. *Scolia haemorrhoidalis* Fabricius, 1787, by original designation.

***Leomeris* Betrem in Betrem & Bradley, 1972**

Leomeris Betrem in Betrem & Bradley, 1972: 110.

Type species. *Scolia leonina* Dalman, 1823, by original designation.

***Liacos* Guérin-Ménéville, 1838**

Scolia subgenus *Liacos* Guérin-Ménéville, 1838: 246.

Type species. *Scolia dimidiata* Guérin-Ménéville, 1838, by monotypy.

Comments. Despite being generally assumed to be feminine, the name *Liacos* is masculine in gender (ICZN Art 30.2.4; D. Yanega, pers. comm.) *Scolia dimidiata* was synonymised with *S. analis* Fabricius, 1804, now *Liacos analis*, by Saussure and Sichel (1864). Bingham's (1897) incorrect listing of *L. analis* as type species was presumably informed by this synonymy.

***Lindenimeris* Argaman, 1996**

Campsomeris subgenus *Lindenimeris* Bradley, 1964c: 191 (*nomen nudum*).
Lindenimeris Argaman, 1996: 212.

Type species. *Campsomeris lindenii* Lepeletier de Saint-Fargeau, 1845, by original designation.

Comments. *Lindenimeris* was first used by Bradley (1964c) as a *nomen nudum* only, in the combination '*Campsomeris (Lindenimeris) lindenii*', with the claim that "*Dr. Betrem plans soon to describe [it]*". No such description by Betrem appears to have ever been published and the name would not be validated until its description by Argaman (1996). Despite Argaman's continued attribution to 'Bradley, 1964', the name must be attributed to Argaman himself.

Lindenimeris was listed as a subgenus of *Megacampsomeris* including *M. lindenii* by Osten (2005a). However, other species of *Megacampsomeris* were not assigned to subgenus. Until relationships in this genus are better established, *Lindenimeris* is treated here as a junior synonym of *Megacampsomeris*.

***Lisoca* Costa, 1858**

Lisoca Costa, 1858: 8–9.

Type species. *Scolia quadripunctata* Fabricius, 1775, by subsequent designation (Krombein 1951).

Comments. The publication dates of Costa's '*Fauna del Regno di Napoli*' have long been difficult to establish; those for the sections covering Hymenoptera are provided by Baker (1994). Betrem (1928) designated *Scolia citreozonata* Costa, 1861 as type species of *Lisoca* but that species did not appear in print until three years after the folio in which the genus name first appeared. Krombein's (1951) designation of *S. quadripunctata* was therefore the first to select from among the eligible originally included species. This designation makes *Lisoca* a junior objective synonym of *Scolia* Fabricius, 1775.

***Lissocampsomeris* Bradley, 1957b**

Campsomeris subgenus *Lissocampsomeris* Bradley, 1957b: 75.

Type species. *Colpa wesmaeli* Lepeletier de Saint-Fargeau, 1845, by original designation.

***Lobhargita* Argaman, 1996**

Lobhargita Argaman, 1996: 208.

Type species. *Scolia aureola* Klug, 1832, by original designation.

***Madonimeris* Betrem, 1967**

Campsomeriella subgenus *Annulimeris* section *Madonimeris* Betrem, 1967: 28–29.

Type species. *Dielis madonensis* Buysson, 1910, by original designation.

***Malagaselis* Betrem in Betrem & Bradley, 1972**

Guigliana subgenus *Malagaselis* Betrem in Betrem & Bradley, 1972: 74.

Type species. *Elis elliotiana* Saussure, 1891, by original designation.

***Mansuetimeris* Betrem in Betrem & Bradley, 1972**

Aureimeris subgenus *Mansuetimeris* Betrem in Betrem & Bradley, 1972: 250.

Type species. *Scolia mansueta* Gerstäcker in Peters, 1858, by original designation.

***Megacampsomeris* Betrem, 1928**

Campsomeris subgenus *Megacampsomeris* Betrem, 1928: 138.

Type species. *Tiphia grossa* Fabricius, 1804, by original designation.

***Megameris* Betrem, 1967**

Campsomeris subgenus *Megameris* Betrem in Bradley & Betrem, 1967: 294.
Magameris—Osten 2005a: 18 (misspelling).

Type species. *Elis soleata* Gerstaecker, 1871, by original designation.

***Megascolia* Betrem, 1928**

Scolia subgenus *Triscolia* section *Megascolia* Betrem, 1928: 239.

Type species. *Scolia procer* Illiger, 1802, by original designation.

***Micromeriella* Betrem in Betrem & Bradley, 1972**

Micromeriella Betrem in Betrem & Bradley, 1972: 116–117.

Type species. *Scolia marginella* Klug, 1810, by original designation.

Comments. Replacement name for *Micromeris* Betrem in Bradley & Betrem, 1967 *non* Conrad, 1866.

***Micromeris* Betrem in Bradley & Betrem, 1967**

Campsomeris subgenus *Micromeris* Bradley, 1964c: 188, 189 (*nomen nudum*).
Campsomeris subgenus *Micromeris* Betrem in Bradley & Betrem, 1967: 294.

Type species. *Scolia marginella* Klug, 1810, by original designation.

Comments. Preoccupied by *Micromeris* Conrad, 1866 (*Bivalvia*), subsequently replaced by *Micromeriella* Betrem in Betrem & Bradley, 1972.

***Microscolia* Betrem, 1927b**

Scolia subgenus *Microscolia* Betrem, 1927b: xcvi–xcvii.

Type species. *Scolia cephalotes* Burmeister, 1854, by original designation.

***Molzinarda* Argaman, 1996**

Molzinarda Argaman, 1996: 192.

Type species. *Scolia nitida* Smith, 1858, by original designation.

***Mookitena* Argaman, 1996**

Mookitena Argaman, 1996: 214–215.

Type species. *Campsomeris hesterae* Rohwer, 1927, by original designation.

***Murahutka* Argaman, 1996**

Murahutka Argaman, 1996: 190.

Type species. *Scolia quadriceps* Smith, 1858, by original designation.

***Mutilloscolia* Bradley, 1959**

Scolia subgenus *Mutilloscolia* Bradley, 1959: 361.

Type species. *Scolia campanulata* Bradley, 1959, by original designation.

***Naysebwa* Argaman, 1996**

Naysebwa Argaman, 1996: 200.

Type species. *Scolia fulvofimbriata* Burmeister, 1854, by original designation.

***Niyaranta* Argaman, 1996**

Niyaranta Argaman, 1996: 213.

Type species. *Scolia aurulenta* Smith, 1855, by original designation.

***Nokbibula* Argaman, 1996**

Nokbibula Argaman, 1996: 191.

Type species. *Scolia vittifrons* Sichel in Saussure & Sichel, 1864, by original designation.

***Noybarilta* Argaman, 1996**

Noybarilta Argaman, 1996: 211.

Type species. *Scolia hoffmannseggii* Klug, 1805, by original designation.

***Nyaselis* Betrem in Betrem & Bradley, 1972**

Trielis subgenus *Nyaselis* Betrem in Betrem & Bradley, 1972: 61–62.

Type species. *Trielis nyasensis* Betrem in Betrem & Bradley, 1972, by original designation.

***Onkoknoa* Argaman, 1996**

Onkoknoa Argaman, 1996: 195.

Type species. *Scolia bilunata* Saussure, 1858, by original designation (misspelled ‘*bilunulata*’).

***Ordatirga* Argaman, 1996**

Ordatirga Argaman, 1996: 185.

Type species. *Dielis mima* Buysson, 1897, by original designation.

***Orlovinga* Argaman, 1996**

Orlovinga Argaman, 1996: 199.

Type species. *Scolia gussakovskii* Steinberg, 1953, by original designation.

***Oscalosca* Argaman, 1996**

Oscalosca Argaman, 1996: 214.

Type species. *Elis pilipes* Saussure, 1858, by original designation.

***Paconzitva* Argaman, 1996**

Paconzitva Argaman, 1996: 196.

Type species. *Scolia alecto* Smith, 1858, by original designation.

***Palaeoscolia* Antropov in Antropov et al., 2014**

Palaeoscolia Antropov in Antropov et al., 2014: 401.

Type species. *Palaeoscolia relictata* Antropov in Antropov et al., 2014, by original designation.

Comments. Fossil taxon (Late Eocene).

***Pardesiya* Argaman, 1996**

Pardesiya Argaman, 1996: 200.

Type species. *Scolia neglecta* Cyrillo, 1787, by original designation.

Comments. *Scolia neglecta* was synonymised with *S. carbonaria* (Linné, 1767) by Hamon (1994).

***Peltatimeris* Betrem in Betrem & Bradley, 1972**

Peltatimeris Betrem in Betrem & Bradley, 1972: 311.

Type species. *Peltatimeris peltata* Betrem & Bradley, 1972, by original designation.

***Penimeris* Betrem in Betrem & Bradley, 1972**

Megameris subgenus *Penimeris* Betrem in Betrem & Bradley, 1972: 181.

Type species. *Megameris pseudofasciatipennis* Betrem in Betrem & Bradley, 1972, by original designation.

***Phalerimeris* Betrem in Bradley & Betrem, 1967**

Campsomeris subgenus *Phalerimeris* Betrem in Bradley & Betrem, 1967: 294–295.

Type species. *Elis phalerata* Saussure, 1858, by original designation.

***Phaleromeris* Argaman, 1996**

Phaleromeris Bradley, 1964c: 193 (*nomen nudum*).

Phaleromeris Argaman, 1996: 205.

Type species. *Tiphia annulata* Fabricius, 1793, by original designation.

Comments. *Phaleromeris* was first used by Bradley (1964c) as a *nomen nudum*, in the combination ‘*Campsomeris (Phaleromeris) annulata*’. This name presumably represents a variant spelling of what would eventually be established as *Phalerimeris* Betrem in Bradley & Betrem, 1967, though *Tiphia annulata* would not be included in the final concept. Nevertheless, Argaman (1996) adopted Bradley’s (1964c) usage as valid. Because *Phalerimeris* and *Phaleromeris* differ in spelling, they must both be accepted as available names (ICZN Art. 56.2), with the latter attributed to Argaman (1996) as the first author to provide a description. *Phaleromeris* is a junior objective synonym of *Annulimeris* Betrem, 1967.

***Proscolia* Rasnitsyn, 1977**

Proscolia Rasnitsyn, 1977: 524–525.

Type species. *Proscolia archaica* Rasnitsyn, 1977, by monotypy.

***Protoscolia* Zhang, Rasnitsyn & Zhang, 2002**

Protoscolia Zhang, Rasnitsyn & Zhang, 2002: 80.

Type species. *Protoscolia sinensis* Zhang, Rasnitsyn & Zhang, 2002, by original designation.

Comments. Fossil taxon (latest Jurassic or Early Cretaceous).

***Pseudotrielis* Betrem, 1928**

Campsomeris subgenus *Pseudotrielis* Betrem, 1928: 83.

Type species. *Scolia zonata* Smith, 1855, by original designation.

***Punctelis* Betrem in Betrem & Bradley, 1972**

Crioscolia subgenus *Punctelis* Betrem in Betrem & Bradley, 1972: 66.

Type species. *Elis punctum* Saussure, 1891, by original designation.

Comments. Listed by Osten (2005a) as a section of *Colpa* subgenus *Crioscolia*. Betrem and Bradley's (1972) original status as a subgenus of a distinct genus *Crioscolia* is maintained herein.

***Pupunhuga* Argaman, 1996**

Pupunhuga Argaman, 1996: 203.

Type species. *Campsomeris sauteri* Betrem, 1928, by original designation.

***Pygodasis* Bradley, 1957b**

Pygodasis Bradley, 1957b: 72.

Type species. *Scolia quadrinotata* Fabricius, 1804, by original designation.

Comments. *Scolia quadrinotata* was synonymised with *Scolia quadrimaculata* Fabricius, 1775, now *Pygodasis quadrimaculata*, by Bradley (1964b).

***Pyrrhoscolia* Bradley, 1959**

Scolia subgenus *Pyrrhoscolia* Bradley, 1959: 347.

Type species. *Scolia fax* Bradley, 1959, by original designation.

***Radumeris* Betrem, 1962b**

Campsomeris subgenus *Radumeris* Betrem, 1962b: 206–207.

Type species. *Tiphia radula* Fabricius, 1775, by original designation.

***Rahosmula* Argaman, 1996**

Rahosmula Argaman, 1996: 190.

Type species. *Liacos sicheli* Saussure, 1859, by original designation of misidentified type species (see below).

Comments. Argaman (1996) originally designated the type species of this genus as *Scolia sicheli* Saussure, 1859. However, it is evident that the intended species was *Liacos sicheli* Saussure, 1859, described in the same paper and included in *Scolia* by Betrem (1928). The provided description matches *Liacos sicheli*, not *Scolia sicheli*, and *Rahosmula* is stated to be Oriental in distribution as for *Liacos sicheli*, whereas *Scolia sicheli* is southern African. Identification of the correct type species is significant in this case as *Liacos sicheli* is currently included in *Diliacos* whereas *Scolia sicheli* belongs to *Scolia* subgenus *Discolia* (Osten 2005a). Therefore, in accordance with ICZN Art. 70.3, *Liacos sicheli* Saussure, 1859 is officially designated herein as the type species of *Rahosmula* Argaman, 1996.

***Regiscolia* Betrem & Bradley, 1964**

Megascolia subgenus *Regiscolia* Bradley, 1964a: 10, 11, 13, 14, 21, 23, 33 (*nomen nudum*).

Megascolia subgenus *Regiscolia* Betrem & Bradley, 1964: 441.

Type species. *Scolia flavifrons* Fabricius, 1775, by original designation.

Comments. Betrem and Bradley (1964) introduced *Regiscolia* for *Scolia* subgenus *Triscolia* section *Triscolia* as used in Betrem (1928), based on his mistaken identification of the type species for *Triscolia* Saussure, 1863 (see below). Their treatment satisfies the requirements of ICZN Art. 13.1.2, though they also included a comparison of the type species with *Triscolia* proper.

Argaman (1996) attributed *Regiscolia* to Bradley (1964a), in which it was used as a *nomen nudum* only, and incorrectly identified *Sphex bidens* Linné, 1767 as type species; he assigned the actual type species *Scolia flavifrons* to *Ascolia* Argaman, 1996.

***Rhabdotomeris* Bradley, 1957b**

Campsomeris subgenus *Rhabdotomeris* Bradley, 1957b: 72.

Rhabdotimeris—Osten 2005a: 3 (misspelling).

Type species. *Scolia rokitanskyi* Dalla Torre, 1897, by original designation.

Comments. *Scolia rokitanskyi* was introduced by Dalla Torre (1897) as a replacement name for *Elis mexicana* Cameron, 1893, preoccupied in *Scolia* by Saussure (1858). The type species of *Rhabdotomeris* was cited by Bradley (1957b) as '[*Elis Mexicana* Cameron, 1893] = *Campsomeris* (*Rhabdotomeris*) *rokitanskyi* (D.T.)', accepted herein as a valid designation of *S. rokitanskyi*.

***Rihamlia* Argaman, 1996**

Rihamlia Argaman, 1996: 195.

Type species. *Scolia venusta* Smith, 1855, by original designation.

***Rodriguimeris* Betrem, 1967**

Campsomeriella subgenus *Rodriguimeris* Betrem, 1967: 27, 29.

Type species. *Campsomeris fax* Bradley, 1936, by original designation.

***Rostopasca* Argaman, 1996**

Rostopasca Argaman, 1996: 187.

Type species. *Scolia erivanensis* Radoszkovsky, 1879, by original designation.

Comments. The status of *Scolia erivanensis* remains uncertain. Osten (2005a) listed it in *Scolia* with a query, without assigning it to subgenus, but Argaman (1996) included it in his tribe Ascoliini with taxa here assigned to *Megascolia* subgenus *Regiscolia*. Until its position can be better determined, *Rostopasca* is provisionally accepted as a valid genus.

***Rucarcana* Argaman, 1996**

Rucarcana Argaman, 1996: 205–206.

Type species. *Campsomeris flavidula* st. *congener* Turner, 1909, by original designation.

Comments. Turner (1909) used the abbreviation ‘st.’ (possibly standing for ‘strain’) to denote variants within species. It is unclear whether such taxa were intended at subspecific or infra-subspecific rank. Infra-subspecific taxa published before 1961 are unavailable under the *Code* unless used for a valid species or subspecies prior to 1985 (ICZN. Art. 45.6.4.1). *Campsomeris congener* Turner, 1909 was recognised as a distinct species by Betrem (1928), thus confirming its availability whatever its prior status.

***Scolia* Fabricius, 1775**

Scolia Fabricius, 1775: 355.

Scholia Newman, 1835: 399 (unjustified emendation).

Scobia—Agassiz 1846: 6 (misspelling).

Solia—Dalla Torre 1897: 144 (misspelling).

Type species. *Scolia quadripunctata* Fabricius, 1775, by subsequent designation (Latreille 1810).

Comments. As indicated by Betrem (1928), subsequent designations of type species for *Scolia* (Bingham 1897: *S. flavifrons* Fabricius, 1775; Schrottkey 1910: *S. atrata* Fabricius, 1775) are preoccupied by Latreille (1810). *Scolia quadripunctata* was synonymised with *S. sexmaculata* (Müller in Allionius, 1766) by Betrem (1936).

***Scolioides* Guiglia & Capra, 1934**

Scolia subgenus *Scolia* section *Scolioides* Guiglia & Capra, 1934: 115.

Type species. *Apis hirta* Schrank, 1781, by original designation.

***Sericocampsomeris* Betrem, 1941**

Campsomeris subgenus *Sericocampsomeris* Betrem, 1941: 91–92.

Type species. *Scolia quadriguttulata* Burmeister, 1854, by original designation.

Comments. *Scolia quadriguttulata* was synonymised with *Scolia stygia* Illiger, 1802, now *Sericocampsomeris stygia*, by Betrem and Bradley (1972).

***Sinoproscolia* Zhang, Zhang, Rasnitsyn & Jarzembowski, 2015**

Sinoproscolia Zhang, Zhang, Rasnitsyn & Jarzembowski, 2015: 580–581.

Type species. *Sinoproscolia yangshuwanziensis* Zhang, Zhang, Rasnitsyn & Jarzembowski, 2015, by original designation.

Comments. Fossil taxon (Lower Cretaceous).

***Sisakrosa* Argaman, 1996**

Sisakrosa Argaman, 1996: 204.

Type species. *Dielis angulata* Morawitz, 1888, by original designation.

Comments. *Dielis angulata* was treated as a subspecies of *Micromeriella hyalina* (Klug, 1832) by Betrem and Bradley (1972).

***Sobolpiha* Argaman, 1996**

Sobolpiha Argaman, 1996: 190.

Type species. *Scolia ribbei* Betrem, 1928, by original designation.

***Sphenocampsomeris* Bradley, 1957b**

Campsomeris subgenus *Sphenocampsomeris* Bradley, 1957b: 76–77.

Type species. *Dielis obesa* Saussure, 1869, by original designation.

***Stiboranna* Argaman, 1996**

Stiboranna Argaman, 1996: 198.

Type species. *Scolia hova* Saussure, 1891, by original designation.

***Stigmatelis* Betrem in Betrem & Bradley, 1972**

Trielis subgenus *Heterelis* section *Stigmatelis* Betrem in Betrem & Bradley, 1972: 47.

Type species. *Elis stigma* Saussure, 1859, by original designation.

Comments. In order to simplify Betrem and Bradley's (1972) complex system of infra-generic divisions, *Stigmatelis* is here raised to a distinct subgenus of *Colpa* from *Heterelis*.

***Stygocampsomeris* Bradley, 1957b**

Campsomeris subgenus *Campsomeris* section *Stygocampsomeris* Bradley, 1957b: 75.

Type species. *Scolia servillei* Guérin-Méneville, 1838, by original designation.

***Sugorpilfa* Argaman, 1996**

Sugorpilfa Argaman, 1996: 196.

Type species. *Scolia philippinensis* Rohwer, 1921, by original designation.

***Susaynata* Argaman, 1996**

Susaynata Argaman, 1996: 212.

Type species. *Campsomeris cochinensis* Betrem, 1928, by original designation.

***Tatusdayca* Argaman, 1996**

Tatusdayca Argaman, 1996: 208.

Type species. *Scolia ephippium* Say, 1837, by original designation.

***Tenebromeris* Betrem, 1963**

Campsomeris subgenus *Tenebromeris* Betrem, 1963: 71–72.

Type species. *Campsomeris tenebrica* Bradley, 1957a, by original designation.

***Tetrasciton* Argaman, 1996**

Tetrasciton Betrem, 1927a: 289 (*nomen nudum*).

Tetrasciton Argaman, 1996: 204.

Type species. *Campsomeris aureicollis* Lepeletier de Saint-Fargeau, 1845, by original designation.

Comments. Argaman (1996) attributed *Tetrasciton* to Betrem (1927a), in which it appears as a *nomen nudum* only, possibly as an error for *Trisciloides*. As such, *Tetrasciton* as an available genus name must be attributed to Argaman himself. *Campsomeris aureicollis* was regarded as conspecific with *Campsomeriella collaris* (Fabricius, 1775) by Bradley (1964c).

***Tetrascolia* Ashmead, 1903**

Tetrascolia Ashmead, 1903: 8.

Type species. *Campsomeris urvillii* Lepeletier de Saint-Fargeau, 1845, by original designation.

Comments. *Campsomeris urvillii* was synonymised with *Scolia dimidiata* Guérin-Méneville, 1838, itself now a synonym of *Liacos analis* (Fabricius, 1804), by Betrem (1928).

***Titbisayda* Argaman, 1996**

Titbisayda Argaman, 1996: 213.

Type species. *Campsomeris binghami* Betrem, 1928, by original designation.

***Tonsoygata* Argaman, 1996**

Tonsoygata Argaman, 1996: 192.

Type species. *Scolia verticalis* Fabricius, 1775, by original designation.

***Torbesula* Argaman, 1996**

Torbesula Argaman, 1996: 211.

Type species. *Elis columba* Saussure, 1858, by original designation.

***Trielis* Saussure, 1863**

Trielis Saussure, 1863: 18.

Triselis—Schulz 1908: 464 (misspelling).

Triolis—Micha 1927: 142 (misspelling).

Type species. *Elis xantiana* Saussure, 1863, by monotypy.

Comments. Ashmead (1903) designated *Elis consanguinea* Saussure, 1855 as type species under the belief that *Trielis* had first been published by Saussure and Sichel (1864). The type status of *Trielis* was clarified by Betrem (1962a).

***Triliacos* Saussure & Sichel, 1864**

Liacos subgenus *Triliacos* Saussure & Sichel, 1864: 33.

Type species. *Scolia dimidiata* Guérin-Méneville, 1838, by subsequent designation (Betrem 1928).

Comments. *Scolia dimidiata* was included in *Triliacos* by Saussure and Sichel (1864) as a synonym of *Liacos analis* (Fabricius, 1804), but is still eligible to be selected as type as an originally included nominal species, having been cited by an available name (ICZN Art. 67.2.1). *Triliacos* is therefore a junior objective synonym of

Liacos Guérin-Ménéville, 1838. Argaman (1996), under the misapprehension that *S. dimidiata* was not eligible for selection, erroneously designated *Scolia erythrosoma* Burmeister, 1854 as type species.

***Trisciloa* Gribodo, 1893**

Trisciloa Gribodo, 1893: 146–147.

Tetrasciloa—Betrem 1927b: xcv (misspelling).

Type species. *Trisciloa saussurei* Gribodo, 1893, by monotypy.

***Triscolia* Saussure, 1863**

Scolia subgenus *Triscolia* Saussure, 1863: 17.

Type species. *Scolia badia* Saussure, 1863, by monotypy.

Comments. Bartlett (1912) nominated *Scolia flavifrons* Fabricius, 1775 as type species of *Triscolia*, believing the latter to have first been published by Saussure and Sichel (1864). However, *Triscolia* had earlier been used by Saussure (1863), in which *S. badia* is the only species included (Betrem and Bradley 1964).

***Tristomeris* Argaman, 1996**

Campsomeris subgenus *Tristomeris* Bradley & Betrem, 1966: 81 (*nomen nudum*).

Campsomeris subgenus *Tristimeris* Bradley & Betrem, 1967: 315 (*nomen nudum*).

Tristimeris Betrem in Bradley, 1974b: 457 (*nomen nudum*).

Tristomeris Argaman, 1996: 203.

Type species. *Campsomeris javana* Lepeletier de Saint-Fargeau, 1845, by original designation.

Comments. Bradley & Betrem used *Tristomeris* as a *nomen nudum* in 1966, in the combination ‘*Campsomeris (Tristomeris) javana*’, and then with the spelling ‘*Tristimeris*’ in 1967, in the combination ‘*Campsomeris (Tristimeris) bradleyi*’. Bradley (1974b) later used the *Tristimeris* spelling with the statement, “*Tristimeris is here introduced by Betrem as a new genus with the type-species Campsomeris javana Lepeletier*”. Unfortunately, no description was provided for this new genus, meaning it remained a *nomen nudum*. The first author to provide a description and establish a type species was Argaman (1996) to whom the genus must be attributed. However, Argaman used ‘*Tristomeris*’ in place of ‘*Tristimeris*’, so the former must be the spelling used.

***Turbatimeris* Betrem in Betrem & Bradley, 1972**

Turbatimeris Betrem in Betrem & Bradley, 1972: 113–114.

Type species. *Turbatimeris turbata* Betrem in Betrem & Bradley, 1972, by original designation.

***Turturayca* Argaman, 1996**

Turturayca Argaman, 1996: 190.

Type species. *Scolia fulgidipennis* Smith, 1858, by original designation.

***Ululanca* Argaman, 1996**

Ululanca Argaman, 1996: 189.

Type species. *Scolia nigrita* Fabricius, 1782, by original designation.

***Uthakkara* Argaman, 1996**

Uthakkara Argaman, 1996: 202.

Type species. *Campsomeris celebensis* Betrem, 1928, by original designation.

***Vardombra* Argaman, 1996**

Vardombra Argaman, 1996: 198.

Type species. *Scolia picteti* Saussure, 1855, by original designation.

***Vobalayca* Argaman, 1996**

Vobalayca Argaman, 1996: 201.

Type species. *Scolia hortorum* Fabricius, 1787, by original designation.

***Wogungela* Argaman, 1996**

Wogungela Argaman, 1996: 198.

Type species. *Scolia micromelas* Sichel in Saussure & Sichel, 1864, by original designation.

***Xanthocampsomeris* Bradley, 1957b**

Campsomeris subgenus *Xanthocampsomeris* Bradley, 1957b: 70.

Type species. *Tiphia tricineta* Fabricius, 1775, by original designation.

***Xanthimeris* Betrem in Betrem & Bradley, 1972**

Aureimeris subgenus *Xanthimeris* Betrem in Betrem & Bradley, 1972: 262–263.
Xantimeris—Osten 2005a: 3 (misspelling).

Type species. *Elis xanthura* Saussure, 1858, by original designation.

***Xirgoniqua* Argaman, 1996**

Xirgoniqua Argaman, 1996: 196.

Type species. *Scolia capitata* Fabricius, 1804, by original designation.

***Ycasbraia* Argaman, 1996**

Ycasbraia Argaman, 1996: 192–193.

Type species. *Scolia rufiventris* Fabricius, 1804, by original designation.

Comments. Junior objective synonym of *Hesperoscolia* Bradley, 1974b.

***Yohaida* Argaman, 1996**

Yohaida Argaman, 1996: 186.

Type species. *Scolia klugii* Linden, 1827, by original designation.

***Zazilayza* Argaman, 1996**

Zazilayza Argaman, 1996: 188.

Type species. *Triscolia haemorroidalis* [sic] var. *rubida* Gribodo, 1893, by original designation.

Summary classification of Scoliidae

The current classification of Scoliidae is presented below as an aid to future research. For the most part, it corresponds to the classification used by Osten (2005a); where it differs, the reasons are discussed in the relevant catalogue entries above. Fossil taxa are marked with a dagger (†). Subgenera are indicated by the abbreviation ‘subg.’

A recent molecular phylogenetic analysis of Scoliidae (Khoury et al. 2022) supported division of the family between Proscoliinae and Scoliinae, and mostly supported division of Scoliinae into Scoliini and Campsomerini. However, *Colpa* was placed sister to Scoliini rather than the remaining Campsomerini, raising the possibility of its reclassification. To reflect this possible distinction, Betrem and Bradley’s (1972) ‘Trielidini’ (including *Colpa*) is recognised below as a subtribe Trielidina within Campsomerini. *Crioscolia* and *Guigliana* were not included in Khoury et al.’s (2022) analysis but are included in Trielidina following Betrem and Bradley (1972).

†Archaeoscoliinae Rasnitsyn, 1993

†*Archaeoscolia* Rasnitsyn, 1993

†*Cretoscolia* Rasnitsyn, 1993

†*Floriscolia* Rasnitsyn, 1993

†*Protoscolia* Zhang, Rasnitsyn & Zhang, 2002

†Palaeoscoliinae Antropov in Antropov et al., 2014

†*Palaeoscolia* Antropov in Antropov et al., 2014

Proscoliinae Rasnitsyn, 1977

†*Cretaproscolia* Rasnitsyn & Martínez-Delclòs, 1999

Proscolia Rasnitsyn, 1977

†*Sinoproscolia* Zhang, Zhang, Rasnitsyn & Jarzembowski, 2015

Scoliinae Latreille, 1802

Campsomerini Bartlett, 1912

Campsomerina Bartlett, 1912

(= Colpacampsomerini Argaman, 1996)

(= Dasyscoliini Argaman, 1996)

(= Dielidini Argaman, 1996)

(= Dobrobetini Argaman, 1996)

(= Megacampsomerini Argaman, 1996)

(= Pseudotrielidini Argaman, 1996)

(= Tetrascitonini Argaman, 1996)

- (= Trisciloini Argaman, 1996)
- Aelocampsomeris* Bradley, 1957
- Aureimeris* Betrem in Betrem & Bradley, 1972
 - subg. *Aureimeris* Betrem in Betrem & Bradley, 1972
 - subg. *Enigmatimeris* Betrem in Betrem & Bradley, 1972
 - subg. *Mansuetimeris* Betrem in Betrem & Bradley, 1972
 - subg. *Xanthimeris* Betrem in Betrem & Bradley, 1972
- Austrolelis* Betrem, 1962a
- Bellimeris* Argaman, 1996
- Campsomeriella* Betrem, 1941
 - subg. *Annulimeris* Betrem, 1967
 - (= *Phaleromeris* Argaman, 1996)
 - subg. *Campsomeriella* Betrem, 1941
 - (= *Iforborha* Argaman, 1996)
 - (= *Pupunhuga* Argaman, 1996)
 - (= *Tetrasciton* Argaman, 1996)
 - subg. *Hirtimeris* Betrem, 1967
 - subg. *Madonimeris* Betrem, 1967
 - subg. *Rodriguimeris* Betrem, 1967
- Campsomeris* Guérin-Méneville, 1838
 - (= *Hayderiba* Argaman, 1996)
- Cathimeris* Betrem in Betrem & Bradley, 1972
 - subg. *Cathimeris* Betrem in Betrem & Bradley, 1972
 - (= *Catharinimeris* Argaman, 1996)
 - (= *Dobrobeta* Argaman, 1996)
 - subg. *Garantimeris* Betrem in Argaman, 1996
- Charimeris* Betrem in Betrem & Bradley, 1972
- Colpacampsomeris* Argaman, 1996
- Dasyscolia* Bradley, 1951
- Dielis* Saussure & Sichel, 1864
 - (= *Haralambia* Argaman, 1996)
 - (= *Oscalosca* Argaman, 1996)
- Extrameres* Betrem in Betrem & Bradley, 1972
- Laevicampsomeris* Betrem, 1933
 - (= *Ilkamilka* Argaman, 1996)
- Leomeris* Betrem in Betrem & Bradley, 1972
- Lissocampsomeris* Bradley, 1957
 - (= *Noybarilta* Argaman, 1996)
 - (= *Torbesula* Argaman, 1996)
- Megacampsomeris* Betrem, 1928
 - (= *Borongorba* Argaman, 1996)
 - (= *Fiharbuxa* Argaman, 1996)
 - (= *Lindenimeris* Argaman, 1996)
 - (= *Susaynata* Argaman, 1996)

- (= *Titbisayda* Argaman, 1996)
- (= *Uthakkara* Argaman, 1996)
- Megameris* Betrem, 1967
 - subg. *Canimeris* Betrem, 1972
 - subg. *Cillimeris* Betrem in Betrem & Bradley, 1972
 - subg. *Fascimeris* Betrem in Betrem & Bradley, 1972
 - (= *Fasciomeris* Argaman, 1996)
 - subg. *Immanimeris* Betrem in Betrem & Bradley, 1972
 - subg. *Megameris* Betrem, 1967
 - subg. *Penimeris* Betrem in Betrem & Bradley, 1972
- Micromeriella* Betrem in Betrem & Bradley, 1972
 - (= *Lobhargita* Argaman, 1996)
 - (= *Micromeris* Betrem in Bradley & Betrem, 1967 *non* Conrad, 1866)
 - (= *Sisakrosa* Argaman, 1996)
- Peltatimeris* Betrem in Betrem & Bradley, 1972
- Phalerimeris* Betrem in Bradley & Betrem, 1967
 - (= *Batalanga* Argaman, 1996)
 - (= *Niyaranta* Argaman, 1996)
- Pseudotrielis* Betrem, 1928
 - (= *Rucarcana* Argaman, 1996)
- Pygodasis* Bradley, 1957b
 - (= *Gondiconda* Argaman, 1996)
 - (= *Tatusdayca* Argaman, 1996)
- Radumeris* Betrem, 1962b
- Rhabdotomeris* Bradley, 1957b
- Sericocampsomeris* Betrem, 1941
- Sphenocampsomeris* Bradley, 1957b
- Stygocampsomeris* Bradley, 1957b
- Tenebromeris* Betrem, 1963
- Trisciloa* Saussure, 1863
- Tristomeris* Argaman, 1996
- Turbatimeris* Betrem in Betrem & Bradley, 1972
- Xanthocampsomeris* Bradley, 1957b
 - (= *Mookitena* Argaman, 1996)
- Trielidina Betrem, 1972
 - (= Colpinae Argaman, 1996)
 - (= Curtaurgini Argaman, 1996)
 - (= Heterelini Argaman, 1996)
- Colpa* Dufour, 1841
 - subg. *Carbonelis* Betrem in Betrem & Bradley, 1972
 - subg. *Colpa* Dufour, 1841
 - (= *Campsoscolia* Betrem, 1933)
 - (= *Trielis* Saussure, 1863)
 - (= *Yohaida* Argaman, 1996)

subg. *Heterelis* Costa, 1887

(= *Ordatirga* Argaman, 1996)

subg. *Junodelis* Betrem in Betrem & Bradley, 1972

subg. *Nyaselis* Betrem in Betrem & Bradley, 1972

subg. *Stigmatelis* Betrem in Betrem & Bradley, 1972

Crioscolia Bradley, 1951

subg. *Crioscolia* Bradley, 1951

(= *Bagonasuna* Argaman, 1996)

(= *Kukkiya* Argaman, 1996)

subg. *Punctelis* Betrem in Betrem & Bradley, 1972

Guigliana Betrem in Bradley & Betrem, 1967

subg. *Guigliana* Betrem in Bradley & Betrem, 1967

(= *Curtaurga* Argaman, 1996)

subg. *Hexelis* Betrem in Betrem & Bradley, 1972

subg. *Malagaselis* Betrem in Betrem & Bradley, 1972

Scoliini Latreille, 1802

(= Agombardini Argaman, 1996)

(= Ascoliini Argaman, 1996)

(= Austroscoliini Argaman, 1996)

(= Betremiini Argaman, 1996)

(= Carinoscoliini Argaman, 1996)

(= Discoliini Argaman, 1996)

(= Hangasornini Argaman, 1996)

(= Lacosiini Argaman, 1996)

(= Liacosinae Schrottky, 1910)

(= Lisocini Argaman, 1996)

(= Megascoliini Argaman, 1996)

(= Triscoliini Argaman, 1996)

(= Ycasbraini Argaman, 1996)

Austroscolia Betrem, 1927b

(= *Citberaysa* Argaman, 1996)

(= *Hitfoidea* Argaman, 1996)

(= *Molzinarda* Argaman, 1996)

Betremia Bradley, 1950

Bradleyella Krombein, 1963

Carinoscolia Betrem, 1927

(= *Nokbibula* Argaman, 1996)

Diliacos Saussure & Sichel, 1864

(= *Murahutka* Argaman, 1996)

(= *Rahosmula* Argaman, 1996)

(= *Sobolpiha* Argaman, 1996)

Laeviscolia Betrem, 1928

Liacos Guérin-Méneville, 1838

(= *Tetrascolia* Ashmead, 1903)

(= *Triliacos* Saussure & Sichel, 1864)

(= *Turturayca* Argaman, 1996)

(= *Ululanca* Argaman, 1996)

Megascolia Betrem, 1928

subg. *Megascolia* Betrem, 1928

subg. *Regiscolia* Betrem & Bradley, 1964

(= *Ascoli* Saussure, 1855, *nomen rejiciendum propositum*)

(= *Ascolia* Argaman, 1996)

(= *Elpaholta* Argaman, 1996)

(= *Guigliana* Argaman 1996 *non* Betrem in Bradley & Betrem, 1967)

(= *Laskariska* Argaman, 1996)

(= *Paconzitva* Argaman, 1996)

(= *Sugorpilfa* Argaman, 1996)

(= *Xirgoniqua* Argaman, 1996)

(= *Zazilayza* Argaman, 1996)

Microscolia Betrem, 1927b

(= *Jupadora* Argaman, 1996)

Mutilloscolia Bradley, 1959

Pyrrhoscolia Bradley, 1959

Rostopasca Argaman, 1996

Scolia Fabricius, 1775

subg. *Clypeiscolia* Bradley, 1974a

subg. *Discolia* Saussure, 1863

(= *Agombarda* Argaman, 1996)

(= *Burgamurga* Argaman, 1996)

(= *Hangasorna* Argaman, 1996)

(= *Iksalonca* Argaman, 1996)

(= *Katapolda* Argaman, 1996)

(= *Kokarevta* Argaman, 1996)

(= *Naysebwa* Argaman, 1996)

(= *Onkoknoa* Argaman, 1996)

(= *Rihamlika* Argaman, 1996)

(= *Scolioides* Guiglia & Capra, 1934)

(= *Stiboranna* Argaman, 1996)

(= *Tonsoygata* Argaman, 1996)

(= *Vardombra* Argaman, 1996)

(= *Wogungela* Argaman, 1996)

subg. *Hesperoscolia* Bradley, 1974b

(= *Ycasbraia* Argaman, 1996)

subg. *Scolia* Fabricius, 1775

(= *Buzatlana* Argaman, 1996)

(= *Lacosi* Guérin-Méneville, 1838)

(= *Lacosia* Argaman, 1996)

(= *Lisoca* Costa, 1858)

(= *Orlovinga* Argaman, 1996)

(= *Pardesiya* Argaman, 1996)

(= *Vobalayca* Argaman, 1996)

Subfamily *incertae sedis*

†*Araripescolia* Nel, Escuillie & Garrouste, 2013

Conclusion

Thirty family-group names and 160 genus-group names are currently available for Scoliidae, including fossil taxa. Of these, 23 family-group names (77% of the total) and 73 genus-group names (46%) may be attributed to a single publication, Argaman (1996). A further 61 genus-group names (38%) were made available by Betrem and/or Bradley. Only 16% of available genus-group names in Scoliidae were not established by these three authors. Two genus-group names (*Micromeris* Betrem in Bradley and Betrem 1967, and *Guigliana* Argaman 1996) are invalid due to being preoccupied. One further name, *Ascoli* Saussure, 1855, is available but proposed for suppression due to its confused history and lack of general usage.

Subsequent authors have not accepted many of the taxa recognised by Argaman (1996). None of his family-group names are currently recognised as valid. Of those genera he proposed *de novo*, only one, *Rostopasca*, is provisionally accepted above, albeit only as a reflection of the uncertain classification of its type species. Nevertheless, twelve names attributed by Argaman (1996) to earlier authors must be regarded as published by Argaman himself due to the absence of earlier descriptions and/or their status as emendations. Three of these, *Bellimeris*, *Colpacampsomeris* and *Tristomeris*, have been accepted as valid by subsequent authors, though the correct spelling for the last name differs from that regularly used.

Recent years have seen an upswing of interest in scoliid systematics (Castagnet and Bitsch 2019; Castagnet 2021; Kim 2021; Liu et al. 2021b; Taylor and Barthélémy 2021; Ramírez-Guillén et al. 2022; Golfetti and Noll 2023). Khouri et al.'s (2022) phylogenetic analysis of the family, though preliminary, suggests that some genera as currently recognised may not be monophyletic. It is to be hoped that future revisions are able to avoid the nomenclatural pitfalls of the past.

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